3.11 Hazardous Materials and Wastes

This section describes the issues associated with hazardous materials and wastes in the project area and the potential for impacts in areas that may be contaminated with hazardous materials or wastes. According to Title 22 of the California Code of Regulations (CCR) § 66261, waste is considered hazardous if it exhibits at least one of the four characteristics of ignitability, corrosivity, reactivity, or toxicity, or if it is a "listed waste." Waste can be liquid, semisolid, or gaseous. Known areas containing significant hazardous materials and wastes resulting in contaminated sites have been identified on the list of California's high-priority Annual Work Plan (AWP) sites, list of solid waste landfill (SWLF) sites, and the National Priorities List (NPL)/Superfund. For this document, these lists are the basis for identifying major contaminated sites within the program region and evaluating potential impacts on humans and the natural environment from exposure to hazardous materials or wastes.

Potential impacts associated with the No Project Alternative, the HST Alignment Alternatives, and station location and maintenance facility options are described[1]. Construction and operation of the HST system could cause impacts to existing hazardous materials or waste sites. For this programmatic analysis, a potential hazardous waste impact is considered wherever the route of a proposed alignment or location of an HST station or maintenance facility conflicts with a known contaminated site or construction or when maintenance activities associated with a project alternative causes an increase in transportation and/or storage of hazardous materials or waste. The sites that pose the greatest concern are those with soil or groundwater contamination within or adjacent to the right-of-way for a proposed alignment or a station location option, and those with groundwater contamination near areas where excavation down to groundwater would be necessary. An overview of hazardous material/waste impacts is presented below. An analysis of the potential impacts by alignment alternative is presented in Section 3.11.3.

Potential HST hazardous material and waste impacts that could occur in the study area are listed below.

- An HST Alignment Alternative could cause ground disturbance (including disturbance of groundwater or surface water) near a known contaminated site during construction, operation, or maintenance activities and expose workers or the public to hazards from a known hazardous materials/waste site.
- An HST Alignment Alternative could cause ground disturbance (including disturbance of groundwater or surface water) where contamination could exist (e.g., aerially deposited lead [ADL], lead-based paint [LBP], petroleum hydrocarbon–affected soil and groundwater, and naturally occurring asbestos [NOA]) during construction, operation, or maintenance activities.
- An HST Alignment Alternative could increase transport, use, storage, or disposal of hazardous materials that is not in accordance with state and federal hazardous materials or waste regulation during construction, operation, or maintenance activities.

3.11.1 Regulatory Requirements and Methods of Evaluation

A. REGULATORY

California's hazardous materials regulations for the discovery of hazardous substances in the subsurface during construction and the disposal of hazardous materials and cleanup of the hazards area incorporate most federal hazardous materials regulations. The most relevant federal regulations are described below.

[1] See Section 3.0, Introduction, for an explanation of how this section fits together with the HST Network Alternatives presented in Chapter 7, as well as for an overview of the information presented in the other chapters.

Resource Conservation and Recovery Act (RCRA)

RCRA governs the disposal of solid and hazardous waste. Congress passed RCRA on October 21, 1976, to address the national problem with the growing volume of municipal and industrial waste. RCRA, which amended the Solid Waste Disposal Act of 1965, set national goals for protecting human health and the environment from the potential hazards of waste disposal, conserving energy and natural resources, reducing the amount of waste generated, and ensuring that wastes would be managed in an environmentally sound manner. The hazardous waste program, under RCRA Subtitle C, establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal—in effect, from "cradle to grave." The underground storage tank (UST) program, under RCRA Subtitle I, regulates underground storage tanks containing hazardous substances and petroleum products. The EPA has primary responsibility for implementing RCRA, but individual states are encouraged to seek authorization to implement some or all RCRA provisions. California received authorization to implement RCRA in August 1992.

Comprehensive Environmental Response and Liability Act (CERCLA)

CERCLA, also known as Superfund, was enacted by Congress on December 11, 1980. CERCLA provided a basis for taxing chemical and petroleum manufacturers and provided federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund using collected taxes to provide for cleanup when no responsible party could be identified. Two types of response actions were authorized under CERCLA: short-term removal actions and long-term remedial response actions, although these actions can be conducted only at sites listed on EPA's NPL.

CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the NPL. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

Lead-Based Paint Poisoning Prevention Act, Title 42—The Public Health and Welfare, Chapter 63—Lead-Based Paint Poisoning Prevention

This federal law prohibited the use of lead-based paint after 1971. For projects involving construction of transportation corridors, contamination resulting from LBP is a frequent hazardous waste issue and may be unknown until testing is performed. Lead was used historically as a pigment and drying agent in oil-based paint. Although the legal limit for lead concentrations in paint was lowered to 0.06% (a trace amount) in 1978 by the U.S. Consumer Product Safety Commission and was lowered voluntarily by some manufacturers prior to that, many structures built prior to the 1980s may still contain undercoats of LBP. Additionally, weathering and routine maintenance of paint on buildings may contaminate nearby soils with lead. Leaded gasoline was used as a vehicle fuel in the United States from the 1920s until the late 1980s. Although lead is no longer used in gasoline formulations, lead emissions from automobiles are a recognized source of contamination in soils along roadways. Surface and near-surface soils along heavily used roadways have the potential to contain elevated concentrations of lead of several hundred milligrams per kilogram.

California's statutes and regulations on hazardous materials are described below.

Health and Safety Code §25100 to §25250.28 and Title 22 C.C.R., Div. 4.5

These codes contain regulations adopted and administered by the California Environmental Protection Agency's (CalEPA's) Department of Toxic Substances Control (DTSC). Both the California Health and

Safety Code and Title 22 C.C.R. require that hazardous waste be managed according to applicable regulations, which include worker operational safety procedures as identified in Title 8 C.C.R.; handling, storage, and exposure requirements; transportation and disposal requirements under a uniform hazardous waste manifest; and documentation procedures. In California, waste disposal facilities are classified in three categories: Class I, Class II, and Class III. A Class I disposal facility may accept federal and state hazardous waste. Class II and Class III facilities are permitted only to accept nonhazardous waste at facility-specific acceptance threshold levels established by the RWQCB, which is the permitting agency.

Additional federal and state regulations address worker exposure to safety and health hazards. The federal regulations are identified in Title 29 CFR, and the state regulations are in Title 8 C.C.R. The federal and California Occupational Safety and Health Administrations are the primary agencies responsible for enforcing these regulations.

The DTSC is responsible for implementing RCRA. The DTSC is also responsible for implementing and enforcing California's own hazardous waste laws, which are known collectively as the Hazardous Waste Control Law. The Hazardous Waste Control Law and its associated regulations are similar to RCRA but regulate more chemicals because they define hazardous waste more broadly. Hazardous wastes regulated by California but not by EPA are called non-RCRA hazardous wastes.

Chapter 6.95, §25503(a), of the California Health and Safety Code and Title 19 of the C.C.R. §2729, *et seq.*

This code requires any business that handles a hazardous material or mixture containing a hazardous material in reportable quantities to establish and implement a Hazardous Materials Business Plan for emergency response to a release or threatened release of a hazardous material. The state's minimum reportable quantities are 500 pounds for a solid, 55 gallons for a liquid, and 200 cubic ft for a gas at standard temperature and pressure. Some acutely hazardous materials are reportable at much lower quantities. Counties in California have different requirements and often require businesses to complete a short form of the Hazardous Materials Business Plan even if they handle hazardous materials below the state's reportable quantities. Businesses typically submit their plans to local administering agencies (e.g., the county's Environmental Health Services Department). The business plan must identify the type of business, location, emergency contacts, emergency procedures, mitigation plans, and chemical inventory at each location.

California's Accidental Release Prevention Law

Certain chemicals that could be released to the environment and affect surrounding communities are regulated by California's Accidental Release Prevention Law. This state law and federal laws with similar provisions (i.e., the Emergency Preparedness and Community Right-to-Know Act [EPCRA] and the Clean Air Act) allow local oversight of both the state and federal programs. The state and federal laws are similar in their requirements; however, the California threshold planning quantities for regulated substances are lower than the federal values. Local agencies may set lower reporting thresholds or add chemicals to the program. Beginning in 1997, the Accidental Release Prevention Law has been implemented by the state's Certified Unified Program Agencies (CUPA). Any business where the maximum quantity of a regulated substance exceeds the specified threshold quantities must register with the county health department as a manager of regulated substances.

To operate in California, all hazardous waste transporters must be registered with the DTSC. Unless specifically exempted, hazardous waste transporters must comply with the California Highway Patrol Regulations, the California State Fire Marshal Regulations, and the United States Department of Transportation Regulations. In addition, hazardous waste transporters must comply with Division 20, Chapter 6.5, Article 6 and 13 of the California Health and Safety Code and the Title 22, Division 4.5, Chapter 13, of the California Code of Regulations, which are administered by DTSC.

B. METHODS OF EVALUATION OF IMPACTS

Identification of Hazardous Sites

Impacts from hazardous waste or material sites are an important consideration in the planning and development of any major transportation improvement project. Because remediation of contaminated soil and groundwater from contaminated sites can dramatically increase the overall cost of a project, it is important to identify the location of these sites early during the environmental analysis process. With this information, contaminated sites can be avoided during the project planning phase. Where contaminated sites cannot be avoided, early identification of these sites can help mitigate impacts that would have resulted in increased project costs, schedule delays, and public and worker safety issues.

At this program level of analysis, only federal and state published databases containing lists of known and significant hazardous materials/hazardous waste sites were reviewed for potential hazardous materials risks. Once an HST Alignment Alternative is selected and the project-level EIR/EIS is prepared, these databases would be supplemented with a more detailed database search of hazardous materials/waste sites (e.g., the Hazardous Waste and Substances Sites [Cortese] List, Government Code 65962.5), including local databases, as required by CEQA. During preparation of the project-level EIR/EIS, the database review would also include Leaking Underground Fuel Tank (LUFT) site list; Leaking Underground Storage Tank (LUST) site list; and Spill, Leak, Investigations, and Cleanup (SLIC) Lists. Additionally, there would be:

- Review of historical land use for the selected alignments and corridors carried forward for detailed analysis.
- Site reconnaissance.
- Review of agency records and agency consultation.
- Environmental data analysis and report preparation.

For this Program EIR/EIS, the following databases were reviewed.

Federal National Priorities List/Superfund
This EPA-developed database lists sites that pose an immediate public health hazard and where an immediate response to the hazard is necessary. This database is also found in the CERCLA database, also known as CERCLIS (Title 42 USC Chapter 103).

State Priority List
Sites listed in this DTSC and RWQCB database are priority sites that were compiled from AWP and CAL-SITES databases, and sites where Preliminary Endangerment Assessments were conducted by Cal-EPA. The CAL-SITES database (often referred to as the Historical Calsites Database) is a database identifying past confirmed or potential hazardous substances releases. The CAL-SITES database is maintained by the DTSC. The AWP database lists contaminated sites authorized for cleanup under the Bond Expenditure Plan developed by the California Department of Health Services as a site-specific expenditure plan to support appropriation of Hazardous Substance Cleanup Bond Act funds.

State of California Solid Waste Landfills
The landfill sites listed in this database generally have been identified by the state as accepting solid wastes. This database includes open, closed, and inactive solid waste disposal facilities and transfer stations pursuant to the Solid Waste Management and Resource Recovery Act of 1972 and is maintained by the California Integrated Waste Management Board. The locations of the disposal facilities are primarily identified through permit applications and local enforcement agencies.

Methods of Analysis

The hazardous materials and wastes analysis for this Program EIR/EIS entailed a qualitative comparison of potential impacts on humans and the natural environment from exposure to hazardous materials or wastes at known priority hazard sites. Exposure impacts are those that could result from proximity to or potential disturbance of sites containing these materials as a result of the No Project Alternative or HST Alignment Alternatives.

As described above, the analysis was based on the results of searches of three specific databases. These database searches included hazardous materials/waste site location data from two different record searches. The first record search was conducted in 2003 by Parsons-Brinckerhoff as part of the Bay Area-Merced Hazardous Materials/Wastes Technical Evaluation. The second record search was conducted in 2006 by Parsons-Brinckerhoff as part of this Program EIR/EIS and included a search of alignment alternatives that had not been previously evaluated in 2003. The hazardous material/waste site data included in Appendix 3.11-A of this document include data from both the 2003 and 2006 record searches.

For this program-level analysis of potential impacts, the analysis was limited to known and major hazardous materials sites and hazardous waste sites that are listed on the NPL, State Priority List (SPL), and SWLF databases. Other types of sites, such as sites with LUSTs or small or unknown sites can also present significant impacts from hazardous materials and waste, but the degree of impact cannot be determined without a site-specific environmental assessment and investigation. These site-specific investigations to address LUSTs and small or unknown contaminated sites would be considered in the project-level EIR/EIS and predesign evaluations that would be tied to more detailed planning efforts for alignment plans and profiles.

Potential impacts for HST Alignment Alternatives were compared to conditions under the No Project Alternative. This assessment assumes that impacts related to hazardous materials/hazardous waste exposure could occur both during project construction and during project operation. Impacts are evaluated based on the anticipated difference between the No Project conditions and conditions under the HST Alignment Alternatives. These different conditions, in terms of the estimated area of the proposed improvements, are discussed more fully in Chapter 2, "Alternatives," which guided the identification of study area boundaries. Particular attention was paid to the extent of improvements that would occur outside existing rights-of-way. This analysis focused on the number of identified NPL, SPL, and SWLF sites in the study area. The program-level comparison of alternatives in this section assesses the relative degree to which known hazardous material and waste sites could constrain the alternatives by requiring costly disposal conditions and site cleanup and remediation. The number of sites gives some indication of an overall level of potential impact; more sites generally imply more potential impacts. In this comparative analysis, each type of listing (NPL, SPL, and SWLF) was given equal weight.

This program-level analysis does not include a detailed assessment of the nature or extent of any hazardous materials or wastes that may be present at identified sites, or the degree or specific nature of potential impacts under the various alternatives. The analysis and identification of potential hazards in the study area is useful in comparing alternatives and in identifying areas where avoidance may be possible in subsequent project-level review.

C. CEQA SIGNIFICANCE CRITERIA

The primary potential hazardous waste issues for HST Alignment Alternatives include short-term construction-related impacts on construction personnel or the public from contamination from known hazardous waste sites and storage and/or transportation of hazardous materials; long-term impacts on operation and maintenance personnel or the public from known hazardous waste sites and storage and/or transportation of hazardous materials; and impacts on construction or maintenance

personnel or the public from unknown but potentially existing contamination (e.g., ADL, LBP, petroleum hydrocarbon–affected soil and groundwater, and NOA).

During the scoping process for this EIR/EIS, no comments were received suggesting that the EIR/EIS should use analysis methods and significance thresholds that were different from CEQA Appendix G thresholds of significance, or analysis methods different from those discussed in Section 3.11.1. Based on the potential impacts of the HST Alignment Alternatives analyzed in this EIR/EIS, the significance criteria described below were examined as to whether they would be appropriate thresholds for this analysis.

Significance Thresholds

An alternative may result in a hazard to the public or the environment (significant impact) if there was an affirmative response to one of the questions below. With respect to this program evaluation, the thresholds of significance from Appendix G of the State CEQA Guidelines that can be evaluated at this time are:

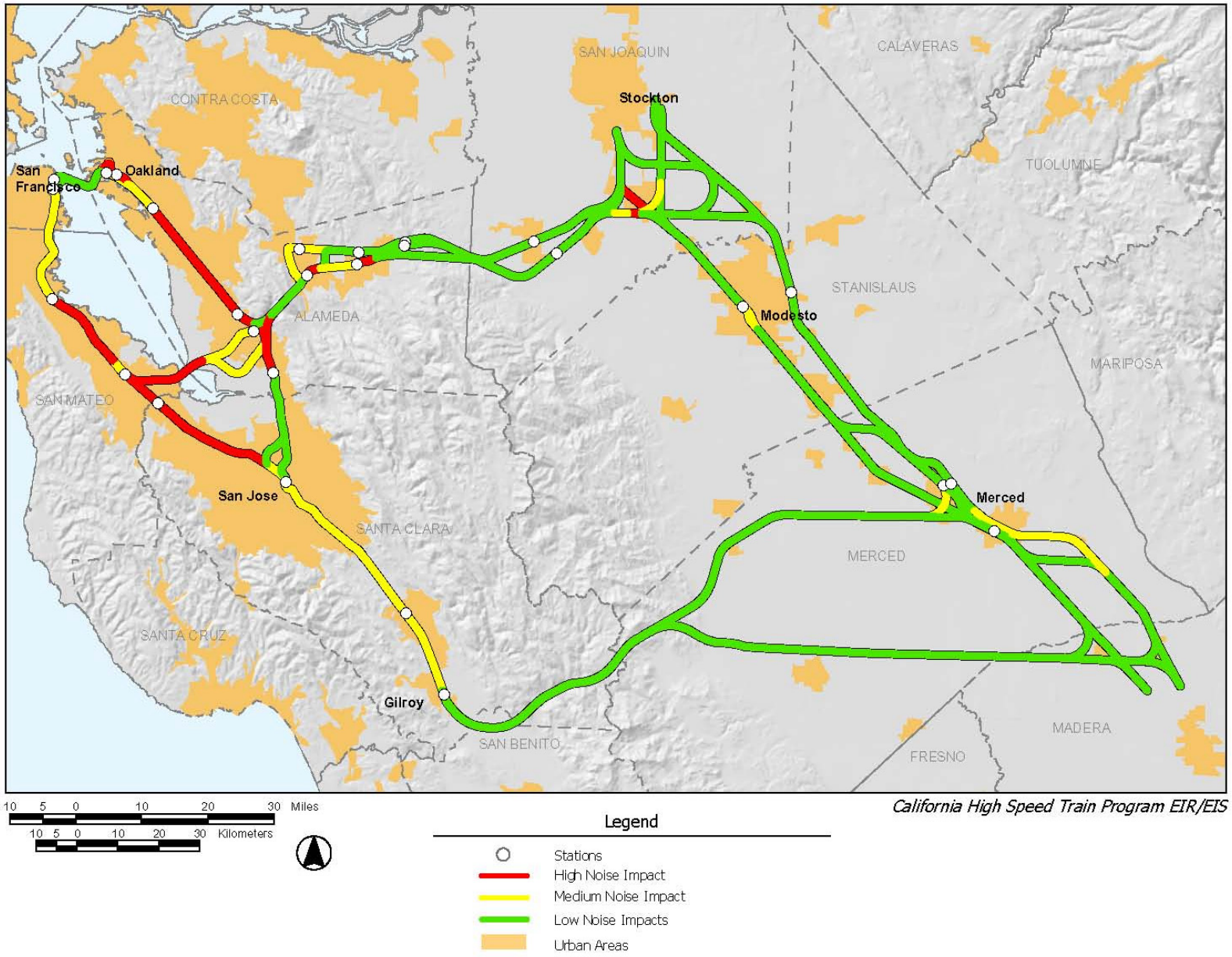
- Would the HST Alignment Alternative cause ground disturbance (including disturbance of groundwater or surface water) near a contaminated site during construction, operation, or maintenance activities and expose workers or the public to hazards from a known hazardous waste site? The point of significance would be such ground disturbance occurring within a 500-ft-wide (152-m-wide) corridor (i.e., 250 ft [76 m] on either side of the centerline or the facility) along each alignment alternative and a 250-ft (76-m) radius around each station and maintenance facility.
- Would the HST Alignment Alternative cause ground disturbance (including disturbance of groundwater or surface water) where contamination could exist (e.g., ADL, LBP, petroleum hydrocarbon–affected soil and groundwater, and NOA) during construction, operation, or maintenance activities? The point of significance would be such ground disturbance occurring in the 500-ft-wide (152-m-wide) corridor (i.e., 250 ft [76 m] on either side of the centerline or the facility) along each alignment alternative and in the 250-ft (76-m) radius around each station location or maintenance facility option.

3.11.2 Affected Environment

Detailed analysis and comparison of the number of hazardous materials/waste sites in the study area is presented in Table 3.11.1. Identification of hazardous materials/waste sites for each segment is presented in Appendix 3.11-A. Figure 3.11-1 shows the location of the identified hazardous materials/waste sites.

A. STUDY AREA DEFINED

The HST Alignment Alternatives would result in substantial improvements to existing infrastructure in or adjacent to existing rights-of-way, in addition to the No Project Alternative transportation improvements. Therefore, the study area for the presence of hazardous materials and wastes includes existing transportation corridors adjacent to HST alignments, the HST alignments, and areas where passenger stations and HST storage and maintenance facilities are being considered. The study area consisted of a 500-ft-wide (152-m-wide) corridor (i.e., 250 ft [76 m] on either side of the centerline or the facility) along each alignment alternative and a 250-ft (76-m) radius around each station and maintenance facility. The study area boundaries were based on the distance within which a hazardous material or waste site could impact the possible location of a transportation improvement under different HST alignment alternatives.



U.S. Department of Transportation
Federal Railroad Administration

Figure 3.11-1
Potential Vibration Impact Levels

B. GENERAL DISCUSSION OF HAZARDOUS MATERIALS AND WASTE SITES

Contaminated sites are more often found in commercial and industrial areas; however, NPL and SLWF sites are also known to occur in rural areas. Common impacts of dealing with contaminated sites during development of transportation projects include unanticipated costs associated with excavating (or pumping), transporting, disposing, or treating on site contaminated soil, groundwater, and hazardous materials; schedule delays associated with sampling, removing, treating, and/or disposing of contaminated media; and worker safety issues.

If unanticipated contaminated soil is encountered during excavation in a project site, it not only poses a worker safety concern but also causes additional work associated with determining the type of chemical contamination and the limits of contamination in terms of its aerial and vertical extent. Unanticipated costs and construction delays frequently arise from mitigation measures, including the required regulatory agency coordination, soil sampling to characterize chemical concentrations, and onsite or offsite treatment and/or disposal costs.

Adverse impacts could also result if contaminated groundwater from an unknown nearby contaminated site is caused to migrate farther in the groundwater or is actually pumped from an aquifer to the surface during construction-related dewatering activities. This scenario is possible if dewatering activities (e.g., for trenches and tunnels) intercepts the contaminated groundwater or causes a change in the local hydraulic gradient, thereby drawing contaminated groundwater from some offsite source. For contaminated groundwater, common problems would be the unanticipated costs and construction delays associated with regulatory coordination, groundwater sampling, possible onsite pretreatment of pumped groundwater, and/or offsite treatment and disposal of contaminated groundwater.

Potential adverse impacts in the short-term (during construction) or long-term (during transit facility operation) would be the human health and the natural environment impacts if project activities cause existing fuel or chemical vapors to emanate from contaminated soil or groundwater or directly from leaks or spills of hazardous materials. These vapors could move through the vadose zone and potentially affect excavated areas or underground structures associated with the rail line (e.g., vaults and manholes).

Materials and wastes that exhibit hazardous properties require special handling and management. Their treatment, storage, transport, and disposal are highly regulated by federal, state, and local governments, minimizing the risk to the public presented by these potential hazards.

Asbestos, a known carcinogen, causes cancers of the lung and the lining of internal organs, as well as asbestosis and other diseases that inhibit lung function. Asbestos-Containing Materials (ACM) are commonly found in structures built prior to the 1980s. Typical ACM includes resilient floor covering, siding, asphalt roofing products, gaskets, and cement products (e.g., stucco). Current federal and state laws and regulations require that specific work practices be followed to abate the hazard associated with exposure to ACM during demolitions and renovations of all structures, installations, and buildings (excluding residential buildings that have four or fewer dwelling units). In addition, the regulations require that the owner of the building and/or the contractor notify applicable state and local agencies and/or EPA Regional Offices before all demolitions or before renovations of buildings that contain certain threshold amounts of asbestos.

NOA found in *s*erpentine rock is also a potential contamination issue. NOA is a fibrous mineral and is often in the form of long, thin fibers, but it can degrade from weathering or excavation activities into microscopic fibers and easily become airborne. There is no health threat if NOA does not become airborne, but, when suspended in the air and inhaled, these thin fibers irritate tissues and resist the body's natural defenses.

C. HAZARDOUS MATERIALS AND WASTE IN THE BAY AREA TO CENTRAL VALLEY REGION

Figure 3.11-1 shows the general locations of the hazardous materials and hazardous waste sites identified in the Bay Area to Central Valley Region through the database searches. Additional information on the results of the database search is presented by segment in Appendix 3.11-A and in the hazardous materials and hazardous wastes technical evaluation documents prepared for each region (Environmental Data Resources 2003). More specific information regarding these sites is provided in Subsection 3.11.3B.

Based on the results of the database searches, the hazardous materials and hazardous waste sites in the Bay Area to Central Valley Region are fairly limited in extent and could be effectively mitigated by incorporating avoidance features or engineering controls into the transportation design and/or implementing accepted hazardous-materials avoidance practices during construction activities. Such measures could substantially decrease costly remediation efforts and time associated with regulatory agency coordination.

3.11.3 Environmental Consequences

Most of the hazardous materials and hazardous waste sites in the study area are relatively minor in extent and could be effectively mitigated through typical design and construction practices. Figure 3.11-1 shows the general locations of hazardous materials and hazardous waste sites identified through the database searches.

The potential severity of impacts from hazardous material or waste releases on the construction, operations, and maintenance of the proposed HST Alignment Alternatives would depend on two factors: the nature and severity of contamination and the construction and operations/maintenance activities that would be likely to occur near the sites. The sites that pose the greatest concern are those with soil or groundwater contamination in or adjacent to the right-of-way, and those with groundwater contamination near areas where excavation down to groundwater would be necessary. For example, dewatering during excavation, trenching, or tunneling could alter local subsurface hydraulic gradients and draw groundwater contamination into excavated areas, trenches, or tunnels. In addition, fuel or chemical vapors could move through the vadose zone[2] to excavated areas (during construction) or to underground structures associated with the rail line, such as vaults and manholes (during project operation). These same impacts could occur near a NPL, SPL, SWLF, or LUFT site or near a small or unknown contaminated site, depending on the nature and extent of the contamination.

A. NO-PROJECT ALTERNATIVE

The No Project Alternative assumes that transportation needs are satisfied with the existing and future statewide intercity transportation system based on programmed and funded (already in funded programs/financially constrained plans) improvements to the intercity transportation system through 2030, according to the following sources of information:

- STIP.
- RTPs for all modes of travel.
- Airport plans.
- Intercity passenger rail plans (California Rail Plan 2001–2010, Amtrak Five- and Twenty-Year Plans).

[2] The *vadose zone* is the partially saturated soil between the ground surface and an underlying groundwater aquifer. Pollutants can travel downward from the ground surface through the vadose zone before entering groundwater or vise versa in some cases which could impact excavations at ground surface.

The No Project Alternative also assumes that others would complete these projects, including the local, state, and interstate transportation system and airport improvements designated in existing plans and programs. It is assumed that no additional hazardous materials/waste impacts would occur beyond those addressed in the environmental documents for those projects and that any hazardous material/waste impacts would be mitigated as part of those projects. Therefore, the No Project Alternative is assumed to have no hazardous materials/waste impacts.

For the purpose of this analysis, existing hazardous materials sites and hazardous waste sites identified in the available databases were treated as the baseline for comparison. Although the future conditions for the No Project Alternative may result in some additional hazardous materials/waste impacts, they cannot be predicted or estimated for purposes of this program-level analysis. Similarly, it can be presumed that during the next 24 years, some of the existing hazardous waste sites would be cleaned up or remediated as part of Cal-EPA and RWQCB efforts.

B. HIGH-SPEED TRAIN ALIGNMENT ALTERNATIVES

As described above, the No Project Alternative was used as a proxy for the baseline 2030 condition; the impact from any improvements associated with the HST Alignment Alternatives would be in addition to the impacts from the 2030 No Project Alternative.

The extent of cleanup or remediation associated with having a hazardous materials/waste site in the study area could translate into additional costs for construction, which could make a major difference in practicality or feasibility of an alternative. As described above, this analysis was limited to searches of three databases listing known significant sites and did not incorporate information on other smaller or unknown sites that could contribute to risk on a local basis and would be studied at the project-specific level. In addition, because neither site-specific investigations nor onsite fieldwork was performed, little or no information is available about the nature or severity of contamination at the sites identified or the schedule or program for cleanup, if any. The comparison below, therefore, represents a *site-count* approximation and may not fully divulge potential risk levels. Finally, most of the HST Alignment Alternatives would be within existing rights-of-way, and these alignments have a land-use history under which additional unknown contamination (e.g., spills and accidental releases) would be a possibility. Consequently, some unavoidable hazardous materials and hazardous waste impacts are expected under the HST Alignment Alternatives.

Summary of Hazardous Materials/Waste Sites

Based on the database searches, five NPL sites, four SPL sites, and eight SWLF sites were identified in the study area. Table 3.11-1 lists the number of hazardous materials/waste sites in the study area for each alignment alternative. Following the table, a brief description and discussion of the potential impacts of these sites is provided for each alignment alternative within a corridor. More detailed data are provided in Table 3.11-A-1 in Appendix 3.11-A. Dashes on the table mean that the segment contained no listings on the database used.

Table 3.11-1. Hazardous Materials Summary Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignments	Alignment Alternative	Number of Hazardous Materials/Waste Sites
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	2
	1 of 1	Dumbarton to San Jose	3
Station Location Options			
Transbay Transit Center			--
4th and King (Caltrain)			--
Millbrae/SFO			--
Redwood City (Caltrain)			--
Palo Alto (Caltrain)			--
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	4
		12th Street/City Center to Niles Junction	3
	1 of 2	Niles Junction to San Jose via Trimble	--
		Niles Junction to San Jose via I-880	--
Station Location Options			
West Oakland/7th Street			--
12th Street/City Center			--
Coliseum/Airport			2
Union City (BART)			--
Fremont (Warm Springs)			
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	--
	1 of 3	Henry Miller (UPRR Connection)	--
		Henry Miller (BNSF Connection)	--
		GEA North	1
Station Location Options			
San Jose (Diridon)			--
Morgan Hill (Caltrain)			--
Gilroy (Caltrain)			--
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	--
		I-580/ UPRR	--
		Patterson Pass/UPRR	--
		UPRR	--
	1 of 4	Tracy Downtown (BNSF Connection)	--

Corridor	Possible Alignments	Alignment Alternative	Number of Hazardous Materials/Waste Sites
		Tracy ACE Station (BNSF Connection)	--
		Tracy ACE Station (UPRR Connection)	--
		Tracy Downtown (UPRR Connection)	--
	2 of 2	East Bay Connections	
Station Location Options			
Pleasanton (I-680/Bernal Rd)			--
Pleasanton (BART)			--
Livermore (Downtown)			--
Livermore (I-580)			--
Livermore (Greenville Road/UPRR)			--
Livermore (Greenville Road/I-580)			--
Tracy (Downtown)			--
Tracy (ACE)			--
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	--
		Trans Bay Crossing – 4th & King	--
	1 of 6	Dumbarton (High Bridge)	--
		Dumbarton (Low Bridge)	--
		Dumbarton (Tube)	--
		Fremont Central Park (High Bridge)	--
		Fremont Central Park (Low Bridge)	--
		Fremont Central Park (Tube)	--
Station Location Options			
Union City (Shinn Station)			--
Central Valley	1 of 6	BNSF – UPRR	--
		BNSF	
		UPRR N/S	
		BNSF Castle	
		UPRR – BNSF Castle	
		UPRR – BNSF	
Station Location Options			

Corridor	Possible Alignments	Alignment Alternative	Number of Hazardous Materials/Waste Sites
Modesto (Downtown)			--
Briggsmore (Amtrak)			--
Merced (Downtown)			--
Castle AFB			1

San Francisco to San Jose

In the San Francisco to San Jose corridor, three NPL sites, no SPL sites, and two SWLF sites were identified. The distribution of hazardous materials/waste sites among alternative alignments is presented in Table 3.11.1.

Along the alignments, at least six tunnels are proposed (Caltrain station to downtown San Francisco, Paul Avenue to Tunnel Avenue in San Francisco, Oak Grove Avenue in Burlingame to 9th Avenue in San Mateo, Sunnyvale Avenue in Redwood City to Cambridge Avenue in Palo Alto, Pettis Avenue in Mountain View to Waverly Street in Sunnyvale, and Scott Boulevard to Lenzen Avenue in San Jose) as part of the design option for this corridor. The southern portal to the Paul Avenue/Tunnel Avenue tunnel would be constructed near the **San Francisco Household Hazardous Waste Facility** and **San Bruno Transfer Station**. There is some potential for hazardous materials/wastes to be present in these areas, and, if so, they could be encountered during construction.

The alignment in this corridor is also adjacent to the **Northrop Grumman Marine Systems** NPL site. The site reported as *Northrop Grumman Marine System* appears to be the NPL site referred to as *Westinghouse Electric Corporation (Sunnyvale Plant)* on the EPA's Superfund website, based on the EPA Identification Number provided in the database search (CAD001864081) (U.S. Environmental Protection Agency 2003). The 75-acre **Westinghouse Electric Corporation (Sunnyvale Plant**) site was formerly used to manufacture electrical transformers. It is currently used to manufacture steam generators, marine propulsion systems, and missile launching systems for the U.S. Department of Defense. Groundwater contamination is believed to have resulted from a leaking polychlorinated biphenyls (PCBs) storage tank and from localized spills. Most of the contaminated areas on site have been removed or have been paved over. Access to the site is restricted (U.S. Environmental Protection Agency 2003).

The **Jasco Chemical Company** is also adjacent to the alignment in the corridor. According to the EPA (USEPA Region 9, site EPA ID# CAD009103318, 2006), bulk solvents used at the site were received by tankers and stored in eight underground storage tanks. Prior to 1985, pentachlorophenol (PCP) was stored at the site, which was an ingredient of a wood preservative formerly produced by Jasco. Elevated levels of volatile organic compounds (VOCs) were detected in soils from a swale area located behind the building and in the shallow groundwater. Past waste disposal practices, and possibly leakage from an underground storage tank and surface water, may have contributed to soil and groundwater contamination near this site. According to the EPA, the removal of contaminated soil, the operation of the groundwater extraction system, and the use of the DVE/SVE system have reduced the potential of exposure at the Jasco Chemical Company site. Results from soil confirmation samples collected on February 26, 2002, showed that the site has reached cleanup goals.

The alignment also passes through areas along part of its route that have been commercial/industrial use areas since the mid 1800s and earlier. Therefore, the route has some potential to encounter hazardous materials/wastes sites not included here.

Oakland to San Jose

In the Oakland to San Jose corridor, no NPL sites, four SPL sites, and no SWLF sites were identified. The distribution of hazardous materials/waste sites among alternative alignments is presented in Table 3.11.1.

The alternative alignments for the corridor include two locations for the Oakland station (West Oakland/7th Street and 12th Street/City Center) that would include subsurface tunneling by boring and cut-and-cover in the vicinity of downtown Oakland to construct the station. Although no NPL or SWLF sites were identified in this area, it is an older commercial/industrial area where historical releases of hazardous materials/wastes are likely and, thus, there is some potential that hazardous materials/wastes could be encountered during construction in this area. Only one SPL site was identified in the downtown Oakland area, **Cole Auto Wreckers**, along Niles/I-880 for the West Oakland alignment. Potential impacts to the proposed station location options from hazardous materials incidences would be further evaluated when the project-level environmental site assessments were prepared.

The alternative alignments in this corridor would pass by the three SPL sites located near the proposed Oakland Coliseum Station. The two sites closest to the Oakland Coliseum Station are **Aero Quality Plating** and **Union Pacific Oakland Coliseum**. The third site, **K & L Plating**, is located south of the Oakland Coliseum. South of the Coliseum, the databases did not identify hazardous material/waste sites located along either the Trimble Road or I-880 alignment alternatives.

The alignment alternatives in this corridor also pass through areas along part of their route that have been commercial/industrial use areas since the mid 1800s and earlier. Therefore, the route has some potential to encounter hazardous materials/wastes sites not included here. An environmental assessment would be performed as part of the design process to better identify impacts from contaminated sites. The assessment would also consider ADL and NOA.

San Jose to Central Valley

In the San Jose to Central Valley corridor, no NPL sites, no SPL sites, and one SWLF site were identified. The distribution of hazardous materials/waste sites among alternative alignments is presented in Table 3.11.1.

There are three alignment alternatives for the San Jose to Central Valley corridor. From the San Jose Diridon Station south to Morgan Hill and Gilroy stations and through Pacheco Pass, there is a single alignment. Although significant portions of this route are urban/commercial, the databases did not identify any hazardous materials/waste sites. East of Gilroy and through the Pacheco Pass area, most of the surrounding land use is open space or agricultural, and no hazardous sites were identified by the databases in this area either.

East of Pacheco Pass, there are two different alignment alternatives: GEA North, which extends from Pacheco Pass to Merced and Atwater, and Henry Miller, which extends from Pacheco Pass to Chowchilla. Among these alignment alternatives, only one SWLF site, **Winton Tire and Automotive Center** in the town of Winton, was identified.

Based on the occurrence of the SWLF site on the GEA North alignment, there is a slightly greater potential for hazardous materials/waste impacts along this alignment compared to the other

alignments in this corridor. The alignment alternatives in this corridor would pass through largely agricultural and open space and to a lesser extent commercial/industrial areas. Therefore, the rural route options have less potential to encounter hazardous materials/wastes as compared with the more urban route options. An environmental assessment would be performed during the design phase to better determine impacts from contamination. The assessment would consider ADL and NOA.

East Bay to Central Valley

In the East Bay to Central Valley corridor, no NPL sites, no SPL sites, and no SWLF sites were identified. The alignment alternatives would pass through both urban/commercial/industrial and agricultural/rural areas—the former being among the cities and communities along the alignments (e.g., Niles, Pleasanton, Dublin, Livermore, Tracey, Manteca, and Stockton) and the later through the Altamont Pass area and portions of the Central Valley.

Alignment alternatives through rural and agricultural areas have less potential to encounter hazardous materials/wastes as compared with the more urban areas. An environmental assessment would be performed during the design phase to better determine impacts from contamination. The assessment would consider ADL and NOA.

San Francisco Bay Crossings

In the San Francisco Bay Crossings corridor, no NPL sites, no SPL sites, and no SWLF sites were identified. The alignment alternatives would connect west Oakland and San Francisco via a tube under the bay. Three options exist for the Dumbarton Rail crossing: an improved (low-level) Dumbarton rail bridge, a new high-level rail bridge, and a new transbay tube.

Portions of the San Francisco Bay crossings pass through areas along part of its route that have been commercial/industrial use areas since the mid 1800s and earlier. Therefore, the route has some potential to encounter hazardous materials/wastes sites not included here. An environmental assessment would be performed during the design phase to better determine impacts from contamination. The assessment would consider ADL and NOA. The project-level environmental assessment work, which would include a review of Cortese-listed sites, would be important, given the potential for dewatering activities in the vicinity of the high groundwater areas near the Bay.

Central Valley Alignment

In the Central Valley corridor, two NPL sites, no SPL sites, and six SWLF sites were identified. The distribution of hazardous materials/waste sites among alignments is presented in Table 3.11.1. This corridor includes alignment alternatives consisting of various combinations of the BNSF and UPRR rail lines. Alignment alternatives are discussed according to the number of hazardous materials/waste sites that occur in the alignment.

The BNSF Castle alignment alternative has the least number of hazardous materials/waste sites, with one site along its segments at the former **Castle Air Force Base** (NPL site). According to the EPA, contamination at the 2,777-acre Castle Air Force Base occurred from the mid-1940s to the mid-1970s as a result of aircraft maintenance, fuel management, and fire training activities. Wastes primarily consist of waste fuels, oils, solvents, and cleaners and lesser amounts of paints and plating wastes. Investigations have been completed or are proceeding at multiple areas of contamination, including landfills, discharge areas, chemical disposal areas, fire training areas, fuel spill areas, and PCB spill areas (Environmental Protection Agency 2006).

The BNSF alignment has two hazardous materials/waste sites along its segments: the former **Castle Air Force Base** and **Winton Tire and Automotive Center** (SWLF site) along the UPRR/BNSF connector to Atwater.

The UPRR N/S alignment alternative has eight hazardous materials/waste sites. **Valley Wood Preserving** (NPL site) is along one segment, **Larry's Tire Mart** (SWLF site) is along two segments, **Mercer Property (CHP Site)** (SWLF site) is along two segments**, Golden State Auto Wrecking** (SWLF site) is along one segment, **Southwest Tire Shop** (SWLF site) is along one segment, and **G & S Tires** (SWLF site) is on one segment. According to the EPA, Valley Wood Preserving, which operated a 14-acre site near Turlock from 1973 to 1979, pressure treated lumber with an aqueous chromated copper arsenate (CCA) solution. This solution was mixed in an aboveground tank near the site boundary and was stored in three adjacent aboveground tanks. Water was piped to the mixing tanks from a well. After the treatment cycle, the wood-treatment solution was drained into sumps and pumped back to the mixing tank for reuse. In 1979, the RWQCB identified toxic wood-treating chemicals in an onsite storage pond, monitoring wells, and on- and offsite soils.

The UPRR—BNSF Castle alignment has 10 hazardous materials/waste sites along its segments: **Valley Wood Preserving** (NPL site) is along one segment, **Larry's Tire Mart** (SWLF site) is along two segments, **Mercer Property (CHP Site)** (SWLF site) is along two segments**, Golden State Auto Wrecking** (SWLF site) is along one segment, **Southwest Tire Shop** (SWLF site) is along one segment, **G & S Tires** (SWLF site) is on one segment, and **Castle Air Force Base** is along two segments.

The 6 alignment has 11 sites along its segments: **Valley Wood Preserving** (NPL site) is along one segment, **Larry's Tire Mart** (SWLF site) is along two segments, **Mercer Property (CHP Site)** (SWLF site) is along two segments**, Golden State Auto Wrecking** (SWLF site) is along one segment, **Southwest Tire Shop** (SWLF site) is along one segment, **G & S Tires** (SWLF site) is on one segment, the former **Castle Air Force Base** is along two segments, and **Winton Tire and Automotive Center** (SWLF site) along one segment.

An environmental assessment would be performed during the design phase to better determine impacts from contamination, as well as examine the Cortese-listed sites. The assessment would also consider ADL and NOA.

3.11.4 Role of Design Practices in Avoiding and Minimizing Effects

At this programmatic level of study, it is not possible to identify specific hazardous material impacts, the nature and severity of contamination, or the construction and operations/maintenance activities that are likely to occur near specific sites. However, the Authority is committed to avoiding and minimizing potential impacts through design refinement at the project level as well as the use of best management practices (BMP) to avoid potential impacts during construction.

3.11.5 Mitigation Strategies and CEQA Significance Conclusions

Based on the analysis above, each of the HST Alignment Alternatives except for the Altamont Pass and the San Francisco Bay Crossings could result in ground disturbance at or near a contaminated site that could potentially expose workers or the public to hazardous wastes. No hazardous material sites were identified in the vicinity of the Altamont Pass and San Francisco Bay Crossings, and for this reason, these two alignments are considered less than significant at the programmatic level. However, because the Altamont Pass and San Francisco Bay Crossings pass though urban areas, it is anticipated that they may be in proximity to hazardous materials sites that could be revealed during future more comprehensive environmental database searches performed during the project pre-design phase.

Based on results of the hazardous material site database search, station location options at the Oakland Coliseum/Airport and Castle Air Force Base could also potentially result in ground disturbance at or near a contaminated site that could potentially expose workers or the public to hazardous wastes. The impact at these station location options is considered significant at the programmatic level. Other station location option impacts are considered less than significant at the programmatic level because no hazardous material sites were identified during the database search. However, many of the other station options are located in urban areas (e.g. Oakland/7th Street and 12th Street/City Center), and a more comprehensive environmental database search of the vicinity of these stations (performed during the project predesign phase) could reveal additional hazardous materials sites.

Mitigation for impacts related to hazardous materials or hazardous wastes depends on detailed site-specific investigations (environmental site assessments) that have not been performed at this programmatic level of analysis. More-detailed analysis and specific mitigation measures would be included in subsequent project-level analysis. Mitigation strategies could include realignment of the HST corridor or relocation of associated features, such as stations, to avoid an identified site, and remediation of identified hazardous material/waste contamination.

In addition, potential mitigation strategies would include, but are not limited to, the following strategies:

- Investigate soils and groundwater for contamination and prepare environmental site assessments when necessary.
- Design realignment of the HST corridors to avoid identified sites.
- Relocate HST-associated facilities, such as stations, to avoid identified sites.
- Remediate identified hazardous materials and hazardous waste contamination.
- Prior to demolition of buildings for project construction, survey for LBP and ACM.
- Follow BMPs for testing, treating, and disposing of water and acquire necessary permits from the RWQCB if ground dewatering is required.
- When indicated by project-level environmental site assessments, perform Phase II environmental site assessments in conformance with the American Society for Testing and Materials (ASTM) Standards related to the Phase II Environmental Site Assessment Process to identify specific mitigation measures.
- Prepare a Site Management Program/Contingency Plan prior to construction to address known and potential hazardous material issues, including:
  - Measures to address management of contaminated soil and groundwater;
  - A site-specific Health and Safety Plan (HASP), including measures to protect construction workers and general public; and
  - Procedures to protect workers and the general public in the event that unknown contamination or buried hazards are encountered.
- As part of the second-tier environmental review, consider impacts to the environment on sites identified on the Cortese List (Government Code section 65962.4) at that time.

The above mitigation strategies are expected to reduce impacts related to hazardous materials and wastes to a less-than-significant level.

At this programmatic level of review, it is not possible to identify the nature and severity of contamination at specific sites on the different alignment alternatives. However, the co-lead agencies' commitment of using design practices to minimize impacts and the use of BMPs and mitigation strategies for remediation of hazardous sites are expected to substantially lessen or avoid impacts to hazardous materials and

wastes. With the project-level review, including review of the Cortese-listed sites, specific impacts to sites with hazardous materials would be identified, and mitigation measures based on these mitigation strategies would be applied on a site-specific basis. Additional environmental assessments would allow evaluation that is more precise in the project-level environmental analyses.

3.11.6 Subsequent Analysis

For each project-specific environmental document that tiers off the Program EIR/EIS, a subsequent analysis consisting of an environmental site assessment would need to be conducted to further analyze the identified potential hazardous materials/waste sites and to further analyze and document the potential impacts related to the proposed project. This analysis will be prepared in conformance with the ASTM guidelines for preparing an environmental site assessment (E1527-05).

An environmental site assessment template would be provided to the Regional Analysis Teams when the project-specific environmental document stage of the project commences. Tasks to be performed for inclusion in the environmental site assessment are outlined in ASTM E 1527-05 and include:

- Task 1—Environmental Database Search.
- Task 2—Review of Historical Land Use.
- Task 3—Site Reconnaissance.
- Task 4—Agency Records Review/Interviews.
- Task 5—Data Analysis and Report Preparation.

Task 1 would involve performing a database search update, using the most recent NPL, SPL, and SWLF databases and the Cortese Database in Gov. Code 65962.5. The database search would also identify sites in other federal, state, and local hazardous materials/waste databases in accordance with the ASTM guidelines for preparing an environmental site assessment (E1527-00) and would also include a review of the United States Geological Survey Mineral Resource Data System for the presence of mining facilities that may have hazardous materials/wastes issues.

Task 2 involves an analysis within the project area of historical land uses in order to identify potential historical contaminant sources that may adversely affect the project area. Information sources that would be consulted include:

- Sanborn-Perris Maps, which were created for fire insurance purposes, and consist of detailed drawings of cities, including residential and business areas.
- Historical aerial photographs (such as those that can be accessed from the Fairchild Aerial Photograph Collection at Whittier College).

Task 3 involves performing a site reconnaissance for each identified site in the project area and surrounding vicinity. The site reconnaissance would be conducted to identify and confirm potential contaminant sources identified during Tasks 1 and 2, and to identify potential unreported contaminant sources that may adversely impact the area. The site reconnaissance would be conducted from public access areas and from within the project area, as feasible. Information would be recorded regarding the site location, the general upkeep of the site, and other observed conditions that might indicate a potential environmental concern.

Task 4 involves the gathering of information from the database search, the historic land use review, and the site reconnaissance. The list of potential contaminant sources would be assembled based on the type of site (e.g., database listing type), the distance from proposed project activities (see Task 1), and the information gathered during the site reconnaissance. A regulatory agency file review would then be

conducted for the identified potential contaminant sources to develop additional site-specific information for the selected properties. The agency files would be reviewed for the most recent site status information, the nature and extent of contamination, pertinent land uses, and geologic, hydrogeologic, and other information that may be used to assess potential impacts to the project.

Task 5 involves screening the potential contaminant sources identified during Tasks 1 through 4. These potential sources would then be screened to determine their potential impact to the project based on the following criteria:

- The occurrence of a documented release, based on either public records or physical observation.
- The physical, chemical, and toxicological characteristics of suspected contaminants released from potential sources, and the media potentially affected (soil, water, and air).
- Distance from the project area/facility site.
- Nature of proposed design and construction activities in relation to the location and possible impact from a potential contaminant source.
- Estimated groundwater flow, direction, and depth.

These criteria would be used to eliminate potential sources that are unlikely to present an impact to the proposed project. The environmental site assessment does not constitute a definitive assessment regarding the actual presence or absence of contamination. The intent of the assessment is to identify reported and obvious potential hazardous conditions that would need to be addressed or considered before proceeding with project construction. The assessment is not performed to meet *innocent landowner* provisions provided under CERCLA, which establishes a defense for the purchase of real property. In addition, the assessment does not guarantee, imply, or assert that all potential contaminant sources have been located due to the possible presence of an unlisted or unidentified contaminant occurrence. Additional subjects that will need to be addressed in the assessment include ACM, ADL, LBP, yellow traffic stripe, pavement marking materials, yellow paint, radon, and NOA.

Based on the information presented in the project-level environmental site assessment, a determination will be made regarding any sites that will need to have a Phase II environmental site assessment performed (e.g., hydrogeologic investigation). This recommendation for a Phase II assessment, along with the implementation of any recommendations made in the document prepared in conjunction with the Phase II assessment, would be identified as a mitigation measure for addressing the potential contamination sites along the identified alignment that require further investigation regarding hazardous materials/waste. The assessment document would specify that the Phase II environmental assessment must be prepared in conformance with the ASTM *Standards Related to the Phase II Environmental Site Assessment Process (E1903-01)*.

The need for testing for ACM, ADL, LBP, yellow traffic stripe, pavement marking materials, yellow paint, radon, and NOA, as appropriate, would be addressed in the mitigation section of the environmental site assessment.